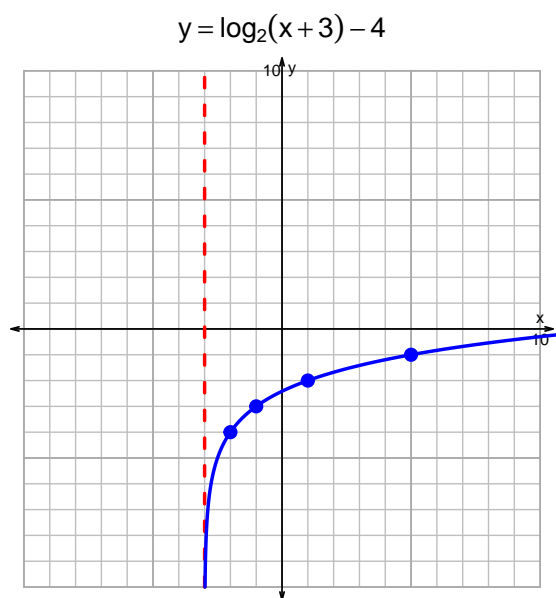
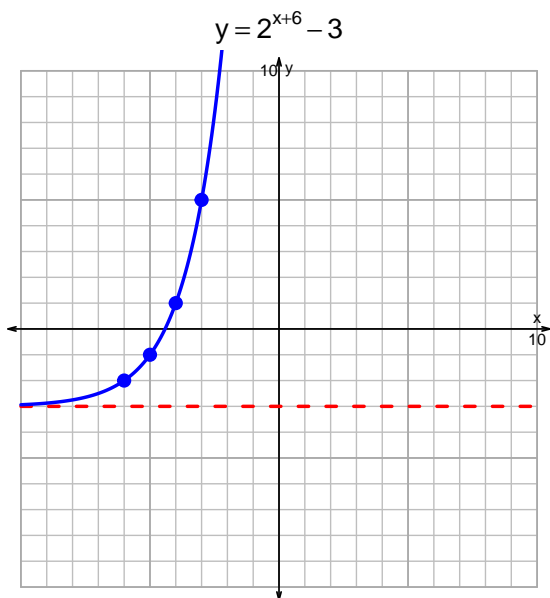


Name: \_\_\_\_\_

Date: \_\_\_\_\_

## s18QUIZ: EXP LOG (SLTN v296)

1. Graph  $y = 2^{x+6} - 3$  and  $y = \log_2(x+3) - 4$  on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-29 = \left(\frac{-3}{5}\right) \cdot 10^{-4t/7}$$

Divide both sides by  $\frac{-3}{5}$ .

$$\frac{29 \cdot 5}{3} = 10^{-4t/7}$$

Take log, base 10, of both sides.

$$\log_{10} \left( \frac{29 \cdot 5}{3} \right) = \frac{-4t}{7}$$

Divide both sides by  $\frac{-4}{7}$ .

$$\frac{-7}{4} \cdot \log_{10} \left( \frac{29 \cdot 5}{3} \right) = t$$

Switch sides.

$$t = \frac{-7}{4} \cdot \log_{10} \left( \frac{29 \cdot 5}{3} \right)$$

3. An exponential function  $f(x) = 2.51 \cdot e^{1.38x}$  is graphed below on a semi-log plot.



- a. Using the plot above, evaluate  $f(-2.5)$ .

$$f(-2.5) = 0.08$$

- b. Express  $f^{-1}(x)$ , the inverse of  $f$ .

$$f^{-1}(x) = \frac{1}{1.38} \cdot \ln\left(\frac{x}{2.51}\right)$$

- c. Using the plot above, evaluate  $f^{-1}(30)$ .

$$f^{-1}(30) = 1.8$$